

APPLICATION FOR  
UNITED STATES LETTERS PATENT

FOR

**CONSUMABLES CONTAINER WITH MULTI-FUNCTIONAL CAP**

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**Certificate of Mailing**

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## **BACKGROUND OF THE INVENTION**

### **1. Technical Field**

This application is a continuation-in-part of pending United States Application No.

5 09/906,458 filed on July 16, 2001, which is a continuation-in-part of pending United States Application No. 09/538,540 filed on March 30, 2000. The present invention relates to a rigid container or canister suitable for storing food products (consumables) with a multi-functional cap. In one embodiment, the cap nests over the mouth end of the container when the container is sealed, but can also nest with the base end of the container for storage while the container is in use. A sub-container or promotional item can be placed within the cap and kept separate from the food product. Further, when inverted, the cap seats into the mouth end of the container, thereby acting as a bowl. The container consists of a molded body that can be wrapped with a thin film graphics carrier. In one embodiment of the invention, the thin film graphics carrier contributes to the barrier properties of the container. The container stands unsupported for a shelf display or can be vendable from soft drink vending machines.

### **2. Description of Related Art**

The design and construction of packaging for containers of consumables, such as potato chips, tortilla chips, chip and dip kits, or other snack products, requires the consideration of several sometimes competing factors. One factor to consider is that the container must be  
20 designed to protect the product contained therein from degradation, microbial spoilage, and physical damage. Ideally, the container should possess barrier properties that limit or prohibit the migration of oxygen, moisture, and light through the container when sealed. Oxygen and

moisture migration into a container reduces the product's shelf life. Product degradation can also be slowed if the barrier properties of the container limit the exposure of the product to light. Breakage of the product can be limited by either placing the product in a rigid container or providing sufficient slack-fill in a non-rigid container to provide an air cushion within the container.

Another factor to consider regarding consumables container design is the marketing aspect, or presentation, of the container. A consumables container should provide an appealing presentation of the product contained therein. It is often desirable that the container be capable of standing unsupported on a store shelf. Further, the container must be capable of supporting graphics either affixed to the container or embedded in the container to assist with brand recognition and the appearance of the packaging. Many prior art containers are constructed of at least three layers, and typically more, consisting of a moisture barrier, an oxygen barrier, a light barrier, and a graphics carrier, all of which are molded or shaped for a desired presentation.

The specific barrier properties of a container are frequently dependent on the product that must be protected. For example, some products, such as crackers, do not need an oxygen barrier for protection. Likewise, other products may not need a moisture barrier or a visible light barrier. Consequently, containers are usually designed with the minimal barrier properties required to protect the specific products to be contained therein.

Another factor in consumables container design is the economics and efficiencies of filling and shipping the container. Containers are ideally constructed to easily and efficiently fill with product on a production line. Further, the containers must fit economically into boxes or crates in order to minimize shipping costs. It might also be beneficial for individual components

of a container, such as a container cap, to be easily stacked for shipment and handling prior to installation on the container.

Another design criteria for consumables container design is the cost and ease of construction of the container. Every layer added to the container may provide additional desired barrier properties. However, the addition of every layer also drives up the cost of constructing the container. Generally speaking, less expensive containers limit the layers of material and the amount of material involved in the construction of the container.

A design of a specific consumables container may also have many application specific design criteria. For example, marketing considerations may make it desirable to construct the container so that it is particularly useful in dispensing or holding a product while being consumed by the consumer. The container may be designed with an easy-open top, a dimension or shape that makes it easy to hold the container in one hand, and an opening sufficient in size for the consumer to retrieve the product from the container by pulling out the product by hand. Another example of an application specific consideration involves dispensing consumables containers from what are traditionally soft drink vending machines. Such containers, referred to as “vendable” containers, must be designed of an appropriate dimension and weight to be easily loaded and dispensed from standard soft drink vending machines. Such dimensions can also make a container suitable for use with a cup holder in an automobile.

Likewise, the ergonomics of the container must be considered. The container can be designed to be easily grasped and held in one hand. Some containers are designed to allow for direct consumption of the product by pouring the product out of the container into the consumer's mouth.

The utility of various components of the container is also an important design consideration. The cap that seals the container might also be used as a bowl or cup to hold the product for consumption by the consumer. The container itself may provide for other functional uses or provide for special re-seal capabilities.

5           The above items are not all-inclusive, but representative of design considerations regarding consumables containers. Frequently, these and other design considerations are in conflict and require balance and compromise. For example, a certain marketing look or presentation may be impractical because it reduces packaging efficiencies or gives rise to difficulties in production line filling or construction. Heavy and multi-layered construction provides ideal barrier properties for protecting a product, but can greatly increase the cost and complexity of construction. The addition of consumer oriented features, such as easy open and resealable tops, can also introduce complexities in manufacturing and increase overall cost. As a result, the snack food industry has yet to develop a container that is of simple and inexpensive construction, provides a unique shelf presentation, provides various consumer friendly features that allow for single-handed operation, provides for storage of multiple products, and provides for sufficient barrier properties in an economical and efficient design.

          In particular, there does not exist in the prior art a vendable consumables container with a cap that performs several functions in an efficient, simple, and economical design. Most containers with removable caps do not provide for any function for the removable cap other than  
20   for use to reseal the container. Further, there is typically no provision on the container for stowage of the removable cap while the container is in use. Frequently, a second cup or bowl must be used, independent from the container, when the consumer wants to pour out only a



capable of standing unassisted on store shelves or, alternatively, being dispensed from a soft drink vending machine. Such a design should be simple and inexpensive to manufacture, provide for packaging and filling efficiencies, and be intuitively functional to the consumer.

## **SUMMARY OF THE INVENTION**

The proposed invention comprises an economically designed, vendable container for snacks and other perishable foods with a multi-functional cap. One embodiment comprises a generally cylindrical container with a multi-functional cap nested over the mouth end of the container and an outer film wrapped over the cap and container after the container is filled. The outer film can also complement the barrier properties of the container.

The invention is simple and inexpensive to manufacture, provides adequate protection for the product contained therein, and is easy to use for the consumer. The multi-functional cap reseals the container, can be used as a bowl for product and as a compartment for a second product such as a condiment or promotional item. The container is capable of standing unassisted on a store shelf or being dispensed from a soft drink vending machine. The container is an improvement over the prior art in ease of manufacture, packaging efficiencies, and functional use by the consumer.

The above as well as additional features and advantages of the present invention will become apparent in the following written detailed description.



## **BRIEF DESCRIPTION OF THE DRAWINGS**

The novel features believed characteristic of the invention are set forth in the appended claims. The invention itself, however, as well as a preferred mode of use, further objectives and advantages thereof, will be best understood by reference to the following detailed description of illustrative embodiments when read in conjunction with the accompanying drawings, wherein:

**Figures 1a and 1b** are perspective views showing a cylindrical embodiment of the invention;

**Figures 2a and 2b** are perspective views illustrating the removal and filling of the multi-functional cap in one embodiment of the invention;

**Figure 3** is a perspective view of a cylindrical embodiment of the invention with the cap inverted and seated in the open end of the container;

**Figure 4** is a perspective view of a cylindrical embodiment of the invention with the cap nested on the bottom of the container;

**Figure 5** is a perspective view of caps of one of the embodiments of the invention stacked together;

**Figures 6a, 6b, 6c, and 6d** are perspective and partial views of a gabled carton embodiment of the present invention;

**Figures 7a, 7b, and 7c** are perspective and partial views of a tear-away cap and square shaped container embodiment of the present invention; and

**Figures 8a, 8b, and 8c** are perspective and partial views of a pop-top cap and square container embodiment of the present invention.

**Figure 9a** is a side view of a multiple product embodiment of the present invention.



# REPORT

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carriers. One embodiment of the container uses a polyvinyl chloride shrink wrap **112**, which adds additional light barrier properties when used as a graphics carrier and some additional moisture barrier properties.

The list of acceptable materials for use in either the receptacle **100** or the outer layer **112** is not exhaustive. Rather, any material available in the field of art that provides the adequate barrier properties along with desirable molding, rigidity, and graphics characteristics can be used in combination. This is true for all embodiments of the invention.

To further reduce manufacturing costs and complexity, the embodiment shown in **Figure 1b** illustrates that the outer layer **112** is wrapped such that it covers all but the top end **110a** of the cap **110** and the bottom or base **104** of the container. By not wrapping the top of the cap **110a** and the bottom **104** of the container, the application of the outer layer shrink-wrap **112** is simplified and requires less material per container. The potential loss of barrier property provided by the outer layer in this design is minimal because the bottom **104** of the container will typically rest on a hard surface and, at least until opened, the container mouth **102** further incorporates a removable seal which can provide substantial barrier properties of its own. Alternatively, the outer layer **112** could be wrapped only over the receptacle **100**, thereby further saving manufacturing costs.

In a vendable embodiment of the present invention, the height of the receptacle **100** from the mouth end **102** to the bottom **104** is approximately 6.63 inches. The diameter of the receptacle **100** at its maximum dimensions above and below the center section **106** is approximately 2.75 inches. The maximum circumference of the container above and below the center section **106** should be identical, in order to provide support between adjacent containers









**Figures 8a, 8b, and 8c** illustrate another variation on a square shaped container that incorporates a snap-off lid **870**. This snap-off lid **870** is removed from the container by pressing upward on an integral tab **872**, as illustrated in **Figure 8b**. This exposes a seal **820**, which in turn is removable by pulling back on a tab **822** component. Once both the cap **870** and seal **820** have been removed from the container, product **830** can be dispensed from the container, as illustrated in **Figure 8c**.

**Figures 9a, 9b, and 9c** illustrate a container for holding two types of products in separate compartments. The container **905** may be used, for example, to conveniently hold chips and dip. The dip is placed in the cap **910** and the chips are placed in the receptacle **915**. A removable seal **920** is used to seal the dip into the integral cap and dip container **910**. Similarly, a removable seal **925** is used to seal chips or other food product in the receptacle **915**. After the chips and dip are sealed into the main body and the cap, respectively, the cap **910** is snapped onto the receptacle **915**. An outer layer may be placed over the container as described above in reference to **Figure 1**. The container **905** can be displayed in an inverted position as shown in **Figure 9a** to make the display more stable since the dip in the cap **910** is heavier than the chips in the container **915**, thus resulting in a lower center of gravity than would be the case if the container were placed in an upright position. **Figure 9c** is an illustration of the product being consumed. The removable seals **920, 925** have been removed by the consumer and now the cap **910** acts as a bowl from which the dip may be consumed. The chips **930** may be consumed directly from the main body **915** or the consumer may pour some or all of the chips out of the container. The container may also be re-closed by the consumer to save the unused chips and/or dip for later consumption. The nature of the container **905** allows the packaging process to be fully

automated without the need for someone to assemble or hold the cap on the container until an outer layer is placed around the product.

**Figures 10a, 10b and 10c** illustrate a container for holding multiple products in separate compartments in which a standard cup is used. A standard cup **1005** with a removable seal **1030** is nested in a cap **1010** and chips or another suitable food product is placed in the receptacle **1015** and a removable seal attached to the mouth of the receptacle **1015** to seal the food product. The standard cup can be any container for holding consumer portions of products such as chili cups, dip cups, cheese cups, ketchup pouches, or other condiments or products that may be contained within said cap **1010**. The standard cup **1005** is typically limited in volume to the volume of the cap **1010**. Although this embodiment is described in terms of a “standard cup” commonly used in the art, the invention is not limited to the use of a standard cup. Other sub-containers may be used with the invention herein. The dimensions of the cap **1010** should be such that the standard cup **1005** will fit into the cap **1010**. Preferably, the standard cup **1005** is a slightly loose fit in the cap **1010** so that it nests inside the cap **1010**. The standard cup **1005** can also be shaped such that it can be inserted into the receptacle **1015** in an upright position as shown in **Figure 10c**. Thus, the receptacle can hold the standard cup in the opening **1035** while the product in the standard cup **1005** is being consumed. The receptacle **1015** may be constructed with a curved, generally cylindrical shape as shown in **Figure 10** to allow the container to be easily gripped by a consumer in one hand. The shape shown in **Figure 10** is such that the container fits both large and small hands comfortably. The receptacle can also be sized such that the receptacle **1015** will fit in a cup holder in an automobile or airplane, for instance, to allow ease of consumption while the consumer is “on the go.” As an example of how the container of **Figure 10** may be utilized



cup **1005** may be seen through the cap **1010**, thus allowing a consumer to see the standard cup **1005** without opening the container. This provides added marketing appeal to the container.

Although not limited to any particular method of manufacturing, the receptacle **1015** can be manufactured using an extrusion blow molding wheel commonly known in the art. The shape shown in **Figure 10** can be formed using a dual parison, mouth to mouth mold. This results in a high output, low-cost container. The materials used in manufacturing the container should be such that the container has effective barrier properties for the product. A container has effective barrier properties when it maintains product integrity under normal conditions for the designed shelf-life of the product.

An outer layer may also be placed around the container for additional barrier protection and decoration as described in reference to **Figure 1**. If the cap **1010** is transparent, the outer layer should also be transparent on the bottom to allow the standard cup **1005** to be seen through the cap **1010**. When the product is consumed, the consumer may either eat the chips or other food product directly out of the mouth of the container **1035** or it may be poured into the cap **1010** after the standard cup **1005** is removed. Preferably the mouth of the receptacle **1015** is wide enough to allow easy consumption of the product directly from the receptacle **1015**. After consuming a portion of the product, the standard cup **1005** can be placed into the main body **1015** in an upright position as shown in **Figure 10c**. The cap **1010** is snapped back onto the container to hold the standard cup **1005** in place and allow for convenient storage of the container in a refrigeration unit such that the dip, chili, or other product in the standard cup **1005** is preserved for later consumption. This method of re-closing the container prevents the two products from undesirably mixing together.

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contact with food products. Prior art containers having promotional items inside the container have placed them either in direct or indirect contact with the food product. The present invention, however, allows the promotional pieces to be placed inside a portable container while keeping the promotional pieces separated from the food product. Furthermore, the present invention allows the volume of the food product in the main body of the container to remain unchanged during a promotional campaign. In prior designs, either the volume of the product must be reduced, or the container size must be increased when a promotional piece is inserted to maintain the same volume of product.

Although the container in **Figure 11** illustrates a single prize being placed inside the cap **1110**, the invention is not limited to a single cap or a single prize, nor is the particular shape of the cap limited to that shown. In another embodiment, two caps could be placed on each end with food products and/or promotional items in each cap, or a cap can be placed on one end and a molded prize attached to the other end. For example, in addition to placing a prize or food product inside the cap **1110**, another prize that is molded to fit the base of the receptacle **1120** could be removably attached directly to the bottom of the container to form part of the overall shape of the container. This prize could be, for example, an injection molded stencil toy that could be removed by a consumer and a picture drawn by the consumer marking through the stencil onto a piece of paper. In such an embodiment, the portability of the container is maintained while also keeping the food product separate from the promotional items.

It should be understood that all of the alternative container embodiments discussed above can incorporate a multi-functional cap with a shape to accommodate the overall container shape. For example, a multi-functional cap could be used with the square container shapes illustrated in

